

30°C or less. Such an ionic liquid has no vapor pressure, that is, it is non-volatile. It exhibits high thermal resistance and non-combustibility, and it is chemically stable. This is noted, for example, at page 6, lines 12-19 of the present specification.

The term "ionic liquid" has found broad use in the literature. The Examiner's attention is directed to the following five references, a copy of each of which is enclosed herewith:

Reference 1

Masahiro Yoshizawa, Wataru Ogihara and Hiroyuki Ohno, "Novel Polymer Electrolytes Prepared by Copolymerization of Ionic Liquid Monomers," *Polymers for Advanced Technologies*, 13, pp. 589-594 (2002)

Reference 2

Masafumi Yoshio, Tomohiro Mukai, Kiyoshi Kanie, Masahiro Yoshizawa, Hiroyuki Ohno and Takashi Kato, "Liquid-Crystalline Assemblies Containing Ionic Liquids: An Approach to Anisotropic Ionic Materials," *Chemistry Letters* pp. 320-321 (2002)

Reference 3

Ann E. Visser, W. Matthew Reichert, Richard P. Swatloski, Heather D. Willauer, Jonathan G. Huddleston, and Robin D. Rogers, "Characterization of Hydrophilic and Hydrophobic Ionic Liquids: Alternatives to Volatile Organic Compounds for Liquid-Liquid Separations," *ACS Symposium Series* (American Chemical Society), pp. 289-308 (2002)

Reference 4

Masayoshi Watanabe, Tomoo Mizumura, "Conductivity Study on Ionic Liquid/Polymer Complexes," *Solid State Ionics*, pp. 353-356 (1996)

Reference 5

Timothy I. Morrow and Edward J. Maginn, "Molecular Dynamics Study of the Ionic Liquid 1-*n*-Butyl-3-methylimidazolium Hexafluorophosphate," *Journal of Physical Chemistry B*, 106, pp. 12807-12813 (2002)

Accordingly, the term "ionic liquid" is considered to have the specificity required by the statute, and the withdrawal of the rejection of the Claims on the basis that this term is indefinite is requested.

The applicants similarly traverse the rejection of Claim 1 under 35 U.S.C. 102(b) as being anticipated by Angell et al., U.S. Patent 5,962,169. Angell et al. fails to disclose or

suggest a composition as presently claimed, namedly, a rubber base with an ionic liquid contained in the rubber base. In Angell et al., the ionic liquid itself is rubbery. This is described, for example, at column 3, lines 16-18 of that patent. Moreover, the patentees, at column 5, lines 11-12, refer to "the new rubbery material of this invention." Accordingly, Angell et al. fails to disclose the basic requirement of the present claims of an unvulcanized rubber base and at least one ionic liquid contained in the rubber base.

The applicants also traverse the rejection under 35 U.S.C. 103(a) over any combination of Angell and Kitano et al., U.S. Patent 6,810,225; Takashima et al., U.S. Patent 6,458,883 and Michot et al., U.S. Patent 6,841,304, as discussed in sections 9-12 of the Office Action.

Kitano discloses ionic compounds, but does not disclose rubber compounds as presently claimed, and particularly those with the preferred ionic liquids defined in the dependent claims. Similarly, Takashima et al. and Angell fail to disclose ionic liquids as presently defined.

Michot et al. disclose molten salts, useful as electrolytic solutes, but do not disclose that the molten salts are added to a rubber. This patent accordingly shares the deficiencies of Angell, in that there is no disclosure of suggestion of an ionic liquid in a rubber. In view of these distinctions, the present invention is neither anticipated by the cited references nor rendered obvious by them.

In view of the above considerations, the invention defined by the present claims is considered to represent a novel and unobvious advance, and the issuance of a Notice of Allowance for Claims 1-6 is in order.

Respectfully submitted,



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Enclosures

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